

### REMARKS

Claims 1, 4, 8, 10 and 14-17 are pending in the above-identified application

Applicant provides remarks below and submits a new declaration under 37 CFR 1.132 in response to criticism stated in the Final Office Action against a previous declaration submitted under 37 CFR 1.132. It is respectfully requested that the Examiner consider and enter of record this new declaration which was not submitted earlier because the criticism of the Final Office Action had not yet been described. This new declaration at least places the present application into better form for consideration on appeal, should an appeal be necessary. In addition, this Response does not provide any new claims or claim changes. Thus, it is submitted that this Response complies with 37 CFR 1.116(b).

#### Issues under 35 USC 103(a)

Claims 1-5 and 8 have been rejected under 35 USC 103(a) as being unpatentable over Eicken '303 (US 4,617,303) in view of *In re Hass et al.* (CCPA 1944) 141 F2d 122 and 127, 60 USPQ 544 and 548; and *In re Henze* (CCPA 1950) 181 F2d 198, 85 USPQ 261.

These rejections are traversed based on the reasons below.

#### Rejection over Eicken '303 Maintained

The Final Office Action maintains the rejection of claims 1-5 and 8 under 35 USC 103(a) as being unpatentable over Eicken '303 (US 4,617,303). Essentially, the Examiner states that the comparative test evidence described in the previously submitted "Haden I Declaration" (submitted with the Amendment filed March 23, 2009 was not convincing of patentability of the present claims for two reasons. First, the elected species compound was not included in the comparative tests. Second, the Examiner interpreted Example 1 and 2 at columns 12-13 to suggest that several of the comparison compounds from Eicken '303, i.e. compounds 16, 21, 25 and 48, apparently exhibited fungicidal action at a level of 97% and 98%, respectively. Both of this points are addressed below.

Submission of Haden II Declaration

In order to address the first point of criticism by the Examiner regarding the previously submitted Haden I Declaration, Applicant now submits a second declaration under 37 CFR 1.132, hereinafter the Haden II Declaration. First, the comparative tests presented in the new Haden II Declaration clearly show that the elected species, as well as other compounds according to the present invention (as evidenced by the Haden I Declaration) that differ in structure by only the replacement of a methyl group with a propyl group from the prior art compound, nevertheless exhibit unexpected, advantageously improved fungicidal properties. In this regard, note the significantly improved fungicidal properties for the elected species compound of Table 1, #1-2 as compared to Examples 4 and 28 of Eicken '303 as shown in the Haden II Declaration. The comparative test evidence completely undermines an attempt to assert that these homologous compounds have similar properties. Note additionally from the six tables summarizing different comparative tests in the Haden II Declaration that the elected species also has a much wider biological spectrum exceeding the phylogenetic group of Phycomycetes (fungicidal activity proven in Eicken '303 was restricted to this group) by far by combating a broad range of fungal species such as *Septoria glycines* (Example 4), *Septoria tritici* (Example 5), *Pyrenophora teres* (Example 6), *Botrytis cinerea* (Example 7), and *Phakopsora pachyrhizi* (Example 9) from diverse phylogenetic groups such as Ascomycetes and Basidiomycetes. There is no evidence in the present record to suggest to one having ordinary skill in the art that the replacement of a methyl group with a propyl group at that position would result in the significantly broadened spectrum of activity (especially against fungal species which are outside of the Phycomycetes group) and an increase in the fungicidal activity. Consequently, this is strong evidence in support of the unexpected, advantageously improved properties exhibited by the presently claimed invention.

The previously submitted Haden I Declaration compared additional examples of Eicken '303 against compound examples falling within the scope of the present claims. The Haden I Declaration provided further evidence establishing that compound examples within the scope of present claims exhibit unexpected, advantageous fungicidal properties over various examples disclosed in the Table of Eicken '303 shown at columns 5-8. The Haden I Declaration compared

various examples of the compounds of the present invention taken from Tables 1 and 2 as shown at pages 6-9 of the present specification. The specific comparisons included Compound A-1 of Table 2 of the present application (R1 is C5-alkyl with R2 being n-butyl) which exhibited superior fungicidal properties over Example 16 of Eicken '303 (R1 is C4-alkyl) in Example 1 of the Haden I Declaration. In Example 2 of the Haden I Declaration, Compound Example A-1 of Table 1 (R1 is C5-alkyl with R2 being n-propyl) exhibited superior fungicidal properties over Example 25 of Eicken '303 (R1 is C4-alkyl) and Compound Example A-47 of Table 1 (R1 is C9-alkyl with R2 being n-propyl) exhibited superior fungicidal properties over Example 21 of Eicken '303 (R1 is C10-alkyl). In Example 3 of the Haden I Declaration, Compound Example A-47 of Table 42 (R1 is C9-alkyl with R2 being n-butyl) exhibited superior fungicidal properties over Example 23 of Eicken '303 (R1 is C10-alkyl). Regarding the "alkoxyethylene" compounds of the present invention, the Haden I Declaration showed that Compound Example A-84 of Table 1 (R1 is C6-alkoxyethylene) exhibited superior fungicidal properties over Example 48 of Eicken '303 (R1 is C6-alkoxypropylene). In addition, in Example 3 of the Haden I Declaration, Compound Example A-86 of Table 1 (R1 is C8-alkoxyethylene) exhibited superior fungicidal properties over Example 42 of Eicken '303 (R1 is C8-alkoxypropylene). Consequently, it is submitted that these comparative test results in the Haden I Declaration provide strong evidence of the patentability of the compounds within the scope of the present claims in view of the evidence of unexpected, advantageous fungicidal properties.

#### *Distinctions over Eicken '303*

Eicken '303 discloses various pyrimidine compounds of formula I as described at column 1, lines 17-52. Eicken '303 fails to disclose any compound examples within the scope of the present claims. As noted in the Office Action, Eicken '303 discloses some compound examples which are homologs of some compounds within the scope of the present claims, differing by one methylene group. This structural difference is significant as evidenced by the comparative test results shown in the Haden I and II Declarations discussed above. These comparative test results establish that there is a significant amount of unpredictability associated with this structural difference which fails to be disclosed or suggested by Eicken '303. Thus, the above-noted

"Hass-Henze Doctrine" does not apply to the present situation, since the adjacent homolog compounds of the present invention exhibit unexpectedly and unpredictably improved fungicidal properties over the closest examples of Eicken '303. The evidence of unexpected advantageous properties provided in the Haden Declaration supports the patentability of the present claims over Eicken '303. *In re Chupp*, 816 F. 2d 643 646, 2 USPQ2d 1437, 1439 (Fed. Cir. 1987). Also see *In re Mills*, 281 F. 2d 218, 126 USPQ 513 (CCPA 1960). Therefore, it is requested that the above rejection be withdrawn.

Interpretation of Eicken '303 Disclosure

In order to address the second point made in the Final Office Action, it is noted the Examiner asserts that the examples disclosed in Eicken '303 that are the closest prior art examples concerning the present application include Examples #16, 21, 25 and 48 and these compounds appear to exhibit fungicidal action values of 97% or 90%. First, it is clear in Examples 1 and 2 that the fungicidal action values of 97% and 90% do not correspond to all of the compound examples, but likely to the best selected compound examples. This is evident from the fact that "e.g." is used which means that these values are exemplified. Also, Eicken '303 merely mentions that the activity of compounds given in a list of 26 and 21 compounds, respectively, can have a fungicidal activity of 90 and 97%, respectively, against two *Phycomycetes* species.

The above-discussed extensive comparative test results in the Haden I and II Declarations provide direct evidence of comparisons against the closest examples in Eicken '303. The Examiner must accept these test results or provide evidence against these results. The Examiner cannot make unsupported assumptions based on indirect evidence. Also, it is noted that the tests described in Eicken '303 were conducted over 25 years ago under somewhat different standards. In this regard, a person skilled in this field of such biological comparative tests using plant pathogen isolates would conclude that it is not proper to attempt to directly compare percentage numbers from trials obtained more than 25 years ago with experiments conducted under much more standardized experimental conditions, such as those described in the Haden I and II Declarations, which employed a glass house, as well as micro titer tests with stringent

atomization and much better controlled environmental growth conditions. Moreover, within these 25 years, the fungal races have undergone certain adaptation to climatic changes and intensified chemical crop protection use which results in genetic alterations. Such adaptations to chemical crop protection use generally leads to reduced sensitivity or even to ultimate resistance of fungal pathogens to active ingredients. Thus, the assumption that the sensitivity of fungal species or populations to a certain fungicidal ingredient remains constant over long time periods of decades is scientifically not tenable. Consequently, a person skilled in the art would not compare data over such time periods and would only take more or less recent results into consideration when starting the development of an improved fungicide. In these recent trials of the Haden I and II Declarations, compounds according to Eicken '303 show limited fungicidal activity against the present spectrum of fungal isolates which needs to be controlled in agriculture. Thus, a person skilled in the art would not have been motivated to develop fungicidal agents from this starting point.

Finally, it is submitted that Eicken '303 has only shown fungicidal activity against two Phycomycetes species (*Phytophthora infestans* and *Plasmopara viticola*). However, Phycomycetes are a relatively small class distinct from the major fungal phylogenetic origin. As shown in the comparative trials of the present invention, the compounds according to the present invention exhibit strong fungicidal activity against a broad range of fungal species from the major class of Dikarya (Higher Fungi) such as *Septoria*, *Botrytis* and *Pyrenophora* spp. (belonging to the Ascomycetes) as well as *Phakopsora* and *Puccinia* spp. (belonging to the Basidiomycetes). Eicken '303 provides no basis to suggest to one skilled in the art that the compounds of the present invention would exhibit not only an increase in fungicidal activity, but also a widening of the biological spectrum of this activity which is an objective of the present invention according to the description on page 1, lines 27 to 29 where is stated, "Based on this, it is an object of the present invention to provide compounds having improved activity and/or a wider activity spectrum." This widening of the activity spectrum outside of the Phycomycetes fungi due to a modification of the R<sup>1</sup> and R<sup>2</sup> was not obvious to a person skilled in the art at the time of the invention.


It is submitted for the reasons above that the present claims define patentable subject matter such that this application should now be placed in condition for allowance.

If any questions arise in the above matters, please contact Applicant's representative, Andrew D. Meikle (Reg. No. 32,868), in the Washington Metropolitan Area at the phone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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Enclosure: Haden II Declaration under 37 CFR 1.132